Remarks

Claims 1-14 are pending in this application. Claims 1, 2, 4, 6-9, 12, and 13 are rejected under 35 U.S.C. §103(a) as obvious over Larson (U.S. Pat. No. 6,292,807) in view of Huang (U.S. Pat. No. 5,995,991). Claims 3, 5, 10, 11, and 14 are rejected under 35 U.S.C. §103(a) as obvious over Larson '807 in view of Najork et al. (U.S. Pat. No. 6, 377,984).

Claim Rejections: 35 U.S.C. §103(a)

Claims 1, 2, 4, 6-9, 12, and 13 are rejected under 35 U.S.C. §103(a) as obvious over Larson (U.S. Pat. No. 6,292,807) in view of Huang (U.S. Pat. No. 5,995,991.

The claims of the present invention are allowable over the combination of Larson and Huang because this combination does not teach storing an incoming message in a message slot when any slot is empty. As discussed below, Larson's FIFOs are devoted to either read memory requests or write memory requests. As further discussed below, Huang's teaching does not change the fact that an arriving read memory request message cannot be stored in the write memory request FIFO if the read memory request FIFO is full, even if the write memory FIFO has an empty slot.

Larson teaches a method of ordering reads and writes to system memory for a graphics processor according to the AGP input/output bus protocol. Memory access requests ("messages") are stored in separate write and read request FIFO queues ("storage slots"). (See, e.g., Larson abstract.) Thus, an

arriving message that corresponds to a write memory request cannot be stored in the read request queue, if the write request FIFO is full, even if the read request FIFO has space. Likewise, an arriving message that corresponds to a read memory request cannot be stored in the write request queue under any circumstances. This includes the circumstance when the write request queue has empty slots and the read request queue has no empty slots.

Independent claims 1 and 12 of the instant application require:

"storing the given message in a storage slot identified by a given tag, when any slot is empty." Embodiments of the present invention allow messages to be stored in any empty message slot providing improved efficiency versus a system where the message slots are dedicated for specific types of messages. Applicant must infer that the Examiner agrees with the assertion that Larson does not teach this limitation of claims 1 and 12, since the second office action withdrew the rejections under 35 USC 102(e) over Larson that were made in the first office action. (See second office action, mailed 12.9.03, page 8). In place of these rejections, the second office action combines the Larson reference with the Huang reference and asserts that this combination now teaches the above limitation of claims 1 and 12.

The Huang reference teaches a method for tagging operands in a floating point architecture. The operands, that are stored in a random access register file, have a tag appended to each operand that identifies if the operand is "normal" or "special" or the location is empty. Huang asserts that the ALU can

process "special" operands with identification tags quicker than without such operand tags.

The second office action (page 4) states that "Huang discloses identifying storage slots." The office action further states it "would have been obvious to modify Larson '807 to include identifying storage slots as taught by Huang '991."

Applicant traverses this rejection because adding indicator tags to the memory access requests stored in Larson's read request FIFO and write request FIFO will not change Larson's method of storing access requests ("messages") in separate write and read request FIFO queues ("storage slots"). A read request arriving when the read request FIFO is full still cannot be stored in the write request FIFO, even if the write request FIFO has space. Thus, the combination of Larson and Huang still does not meet the limitation of "storing the given message in a storage slot identified by a given tag, when any slot is empty."

Since the combinations of Larson and Huang does not teach a required limitation of claims 1 and 12, neither claim 1 nor claim 12 can be obvious over Larson in view of Huang. Further, claims 2, 4, 6-9, and 13 which depend from these independent claims and add further limitations are not obvious over Larson in view of Huang for at least the same reasons as for claims 1 and 12.

Claim 8 requires:

"providing a plurality of FIFO queues, the queues containing tags identifying storage slots."

These tags point to the storage location for the message rather than to a characteristic of the message itself. In contrast, Larson teaches that the tags in the Larson's read age and write age FIFOs contain information that controls the ordering of read and write operations and does not identify the storage slots where the messages are stored. For example, adjacent tags in Larson's FIFOs may contain the same value, depending on the order in which read and write operations are requested. Thus, Larson does not teach a required limitation of claim 8 and cannot anticipate claim 8.

Claims 3, 5, 10, 11, and 14 are rejected under 35 U.S.C. §103(a) as obvious over Larson '807 in view of Najork et al. (U.S. Pat. No. 6,377,984).

Larson '807 is relied upon for teaching the elements of claims 1 and 12. As described above, Larson does not teach a require limitation of claims 1 and 12. (Further, as shown above, the combination of Larson and Huang also does not teach this limitation of claims 1 and 12.) Najork teaches a method for ensuring that a webcrawler only downloads one piece of information from a given host computer on a network at a time, to avoid overloading the host. Najork employs multiple FIFO queues at a time to practice this method but does not provide the teaching, lacking in Larson, of coupling FIFO queues to storage slots and using any free storage slot to store an incoming message. Since neither Najork nor Larson provide this teaching, the combination of Najork and Larson cannot provide this teaching. Therefore, claims 3, 5, and 14 cannot be obvious over Larson in view of Najork.

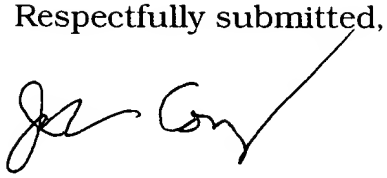
Larson '807 also is relied upon for teaching the elements of claim 8. Claim 8 requires:

"providing a plurality of FIFO queues, the queues containing tags identifying storage slots."

These tags point to the storage location for the message rather than to a characteristic of the message itself. In contrast, Larson teaches that the tags in the Larson's read age and write age FIFOs contain information that controls the ordering of read and write operations and does not identify the storage slots where the messages are stored. For example, adjacent tags in Larson's FIFOs may contain the same value, depending on the order in which read and write operations are requested. Najork employs multiple FIFO queues at a time to practice this method but does not provide the teaching, lacking in Larson, of employing FIFOs that contain tags that point to storage locations. Since neither Najork nor Larson provides this teaching, the combination of Najork and Larson cannot provide this teaching. Therefore, claims 10 and 11, which rely upon Larson and Najork for this teaching, cannot be obvious over Larson in view of Najork.

For the reasons set forth above, it is submitted that all pending claims are in condition for allowance. Reconsideration of all claims and a notice of allowance are therefore requested. If any additional fees are required for the timely consideration of this application, please charge deposit account number 19-4972. The Examiner is requested to telephone the undersigned if any matters remain outstanding so that they may be resolved expeditiously.

Respectfully submitted,



John L. Conway
Registration No. 48,241
Attorney for Applicants

Bromberg & Sunstein LLP
125 Summer Street
Boston, MA 02110-1618
(617) 443-9292

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